

stone, clay, and even sand, hardens water. For mere drinking, pure pump water is confessedly the best; not because it is at all more wholesome, but because, by being impregnated with mineral substances, it is more grateful to the palate: what we above adduced, however, is suggestive of caution in its indiscriminate use. The term *mineral water* is applied to those that contain such an excess of mineral and other foreign substances, that they cannot be used for domestic purposes; the minerals are generally held in solution by carbonic, sulphuric, or muriatic acid; *chalybeate springs* are those containing carbonate of iron. Sulphur enters into the composition of the *Harrogate water* and others, in which it gives a smell resembling that of rotten eggs; all springs yet discovered contain some minute of soda, otherwise common salt.

It remained for Dr. Thomas Clark, of Marischal College, Aberdeen, to achieve, a few years back, what had hitherto defied the skill of his most eminent compeers in chemistry. His process, which we believe was patented, we shall briefly explain:—chalk, which is the ingredient to be separated, is also the chief material for effecting the separation. Although in itself it is insoluble, it is all but rendered soluble by two methods which are very opposite to each other:—one consists in burning it in a kiln, by which it loses seven ounces out of the sixteen—the lost seven consisting of carbonic acid gas, and the remaining nine being caustic lime, which is soluble in forty gallons of water,—this solution is called *lime water*, and is perfectly clear and colourless. In the other method, instead of seven ounces of carbonic acid being abstracted from the pound of chalk, the latter is made to combine with seven ounces more, when it assumes the state in which chalk exists invisibly in the waters of London: this being dissolved in 500 gallons of water, changes to a solution of bi-carbonate of lime, which is as clear and colourless as the lime-water. Now, if two lime-waters be mixed together, or two solutions of bi-carbonate of lime, no change will take place; but when the forty gallons of the former and 500 gallons of the latter are commixed, a business very soon appears, increases to a whiteness, becomes like whitewash, then subsides, and in process of time leaves 540 gallons of pure water above, with the two pounds of chalk, and that which was held in solution by the water before the process took place, at the bottom;—the first pound having resumed its original state by uniting with the seven extra ounces of carbonic acid conveyed by the second. The amount of chalk thus separated being ascertained, the previous hardness of the water, or the existing hardness of that continuing to issue from the source whence it was obtained, may be determined in degrees, which Dr. Clark expresses as follows, namely: 1° equivalent to one grain of chalk per gallon, or the hardness of water generally in degrees which are equal in effect to so many grains of chalk per gallon. According to this scale, the doctor (who attaches the utmost importance to the softness of water) has stated the hardness for various towns as follows:—

Aberdeen	1°
Glasgow (about)	4½
Edinburgh	5
Newcastle-upon-Tyne	5
Pipe-water of London	11 to 16
Ditto Manchester	12
Paris harder than any of the above	
Wells in London	40 to 80

He considers that a water ceases to be agreeable for washing when it is above 4 or 5°, and that 16° is the utmost point that can be conveniently used, to get a proper lather.

It is worth knowing, when the method by which this radical cure is effected is not conveniently available, that the sun's rays, and the action of the atmosphere, exercise a very beneficial influence in softening water; and boiling will bring hard water nearly to the state of soft. Also, when filtering is out of our power, that impure water, by sprinkling alum in it, which causes a precipitation, may be brought to the course of a few hours, to possess nearly all the freshness and clearness of the purest spring water; a table-spoonful to a boghead, or a teaspoon to a pailful, and the water stirred while it is put in, being sufficient to produce the effect; its hardness will be somewhat increased by the mixture,

but that may be corrected by the means we have referred to.

RIVER WATER, which is geographically polluted with extraneous bodies, it has been ascertained, may be purified, so as to lose all unpleasant odour, flavour, and colour, by being suffered to remain completely undisturbed for a period of some weeks; during this time, in consequence of the presence of animal and vegetable matter, it undergoes fermentation, ultimately resuming its transparent purity, and precipitating a small portion of insoluble sediment. Water-companies, who only practice the method of subsidence in reservoirs, would thus be fully justified, if they could allow the water sufficient time to clear itself; but that is quite beyond their power; and without the lapse of time alluded to, the slightest agitation suffices to diffuse again the depositing particles, and, instead of purity, putridity is what may be expected.

An analysis of Thames water, from near the following points, viz.—

	Brentford.	Hammer-smith.	Chel-sea.
Gave, in grains, carbonate of lime	16½	6.9	16.3
Sulphate of lime and common salt	3.4	1.7	2.9

Also a very minute portion of oxide of iron, silica, magnesia, and carbonaceous matter.

RAIN-WATER, from its containing ammonia, possesses eminently the property of "softness;" this, granting that spring-water may be preferable as an article of food, entitles it to the highest estimation for general purposes, and we have therefore long looked upon its wholesale discharge into common sewers, whether on the small scale, as affecting merely private interests, or on the broad principle, as regards towns, as a most improvident, inconsiderate practice. The presence of ammonia in rain-water may be proved, by adding to a quantity in a clean porcelain basin, a little sulphuric or muriatic acid, then evaporating it to dryness, when it will remain in the residue, in combination with the acid; and may be detected either by addition of a little chloride of platinum, or a little powdered lime, which will separate it, and render sensible its peculiar pungent odour.

Marsh-water is found by simple distillation to manifest an acid quality; it abounds with decayed vegetable matter, the most unwholesome of all substances, and when brought into contact with water and submitted to the action of the sun's heat, the most offensive.*

JAMES WYLLSON.

PROGRESS OF THE HOUSES OF PARLIAMENT.

THE following is the third report issued by the House of Lords' committee appointed to inquire into the progress of the building of the House of Parliament; and to whom leave was given to report from time to time to the House:—

"Ordered to report, that the committee have met, and further considered the subject matter referred to them, and have examined two witnesses in relation thereto, and the committee are of opinion that the only impediment to the preparation of the new House of Lords, for the commencement of the session of 1847, arises from a delay in the arrangement for warming and ventilating the apartment according to the views of Dr. Reid.

That the architect has expressed his willingness to undertake the warming and ventilation of the new House, upon a plan of his own, and on his own responsibility.

That the committee are convinced, that if this proposal of the architect be not accepted, the occupation of their new House by the Peers will be postponed to an indefinite period.

And the committee have directed the further evidence of Mr. Barry, taken before them, to be laid before your Lordships."

Since the publication of this report, Dr. Reid has presented a petition praying that the task of ventilating the new Houses of Parliament might not be transferred into other hands until he had been heard upon the subject.

The following are portions of Mr. Barry's evidence referred to:—

"The committee had an impression, from evidence given by you on a former occasion, that you would be willing to undertake to warm and ventilate the new House of Lords upon a system of your own?—I believe I so stated.

If you were to adopt a system of your own,

would it render it impossible hereafter to revert to such a system as Dr. Reid has in a general way recommended or suggested?—Is it meant that that question should apply to the House of Lords exclusively, or to that and any other portions of the building?

To the House of Lords exclusively?—As the subject is altogether new to me, I could not at the present moment answer satisfactorily; but if your lordships would give me four-and-twenty hours to consider that point, I will then be prepared to give you a definite answer to the question.

Do you think that you could prepare the apartment for the Peers by the commencement of the session of 1847, if it were ventilated and warmed according to your own system, and without any interference with your system from any other quarter?—Until I have determined what that system shall be, it would be rather difficult for me to answer that question. With respect to the fixing of the joiners' work, as unfortunately a very large portion of the year, and the portion best adapted for fixing work of that description, has been suffered to elapse, I should be sorry to pledge myself that I would completely finish the House of Lords by the time mentioned, viz. the commencement of the next session; but all I can say is, that I will do every thing in my power, to accomplish the object, and I trust that I should at least be able to bring the House into such a state as, if not completely finished, it might be occupied by your lordships.

The "erection" is rather an indefinite word; do you mean by the 1st of February?—I understand the commencement of the session to mean the 1st of February.

You think you could get the House ready by the 1st of February?—I should not wish to pledge myself to have the House completely finished in all respects by that time; but I think I could finish it so completely that it might be occupied by your lordships.

You mean that every convenience for the sitting of the House might be supplied, although the more ornamental parts might not be finished?—Exactly.

Has any further advance been made in the arrangements of Dr. Reid since you were last examined before this committee?—Not that I am aware of.

Have you the slightest hope, from what has already transpired, and from what you are able to collect, that the work would be at all advanced by this time next year, unless some new arrangements were made with regard to the ventilation?—I must say that I have no hope whatever.

All the fittings are prepared?—They are, with the exception of portions of the throne, and they would be prepared during the time that the rest of the fittings were being fixed.

In making any arrangement for the ventilation, you do not conceive it will be necessary to destroy any part of that which has already been prepared in connection with the arrangements suggested by Dr. Reid?—I do not think it would be necessary to destroy any part; it would be necessary, probably, to modify some of the arrangements, in order to make them available to my own system, if I may so call it.

In the arrangement that you would contemplate for warming, you would not have to alter the ceiling, or any thing that has been done there?—Not at all.

In the putting up of the ceiling a very expensive work?—The putting up of the fittings is a very expensive and rather tedious work; the work is of an unusual description, and will require the greatest possible care in fixing.

Are you in such a state that you could proceed immediately towards the completion of the House if you received the necessary authority?—Yes; I am quite prepared to do so.

Will you describe the state of forwardness of the building adjoining the House, including the lobbies?—The Victoria Hall, which is the apartment immediately adjoining the throne end of the House, is covered in, and the ceiling is nearly fixed. I think it possible to make that room available as well as the House, although the fittings which are to be placed in it might not be completed. The public lobby is also roofed in, and the ceiling is completed, and if it were necessary, that portion of the building also might, I think, be got ready for use. The finishings of the corridors adjoining the House on each side are entirely prepared, and I think, if the time is sufficient for fixing